

ABSTRACT

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Arrays of microelectronic elements such as magnetoresistive memory elements and FET's, including dual-gate FET's, are fabricated by methods involving a host wafer and a first wafer on which part of the microelectronic elements are separately formed. Conductive elements such as metal -filled vias are formed in the host wafer and extend to its surface. Hydrogen ions are implanted at a selected depth in the first wafer . After formation of selected portions of the microelectronic elements above the hydrogen ion implantation depth of the first wafer, the latter is bonded to the surface of the host wafer so that complementary parts of the two wafers can join to form the microelectronic elements. The first wafer is fractured at the hydrogen ion implantation depth and its lower portion is removed to allow for polishing and affixing of electrodes thereon.